

**DEPARTMENT OF TRANSPORTATION
Research and Special Programs
Administration**

49 CFR Part 173

[Docket HM-193, Notice No. 84-8]

**Tritium and Carbon-14; Low Specific
Activity Radioactive Materials
Transported for Disposal**

AGENCY: Materials Transportation
Bureau, Research and Special Programs
Administration, DOT.

ACTION: Notice of proposed rulemaking.

SUMMARY: The Materials Transportation Bureau (MTB) proposes to amend § 173.425 of the Hazardous Materials Regulations (HMR) to except certain low specific activity radioactive materials containing tritium (hydrogen-3) or carbon-14 from most requirements of the HMR when the materials are being transported for disposal. This proposed rule would allow the shipment of waste material such as scintillation counting media, animal carcasses and tissue containing not more than 0.05 microcuries per gram of tritium or

carbon-14 without further consideration of their radioactive hazards. This action is consistent with the Nuclear Regulatory Commission (NRC) provisions specified in new § 20.306, Title 10, Code of Federal Regulations relating to the disposal by NRC licensees of tritium and carbon-14 low activity radioactive materials.

DATE: Comments must be received on or before September 24, 1984.

ADDRESS: Send comments to Dockets Branch, Materials Transportation Bureau, Department of Transportation, Washington, D.C. 20590, (202) 426-3148. Comments should identify the docket number, and five (5) copies should be submitted, if possible. Persons wishing to receive confirmation of receipt of their comments should include a self-addressed stamped post card. The Dockets Branch is located in Room 8426 of the Nassif Building, 400 Seventh Street, SW., Washington, D.C. 20590. Office hours are 8:30 a.m. to 5:00 p.m., Monday through Friday.

FOR FURTHER INFORMATION CONTACT:
A. Wendell Carriker, Office of
Hazardous Materials Regulation,
Materials Transportation Bureau, 400
Seventh Street, SW., Washington, D.C.
20590, (202) 426-2313.

SUPPLEMENTARY INFORMATION:

A. Background

The requirements of § 173.425 address most shipments of low-level radioactive waste transported from NRC or Agreement State licensees to licensed disposal facilities. Medical, biomedical, and related research institutions generate relatively large volumes of tritium and carbon-14 contaminated wastes that meet the definition of low specific activity radioactive material (§ 173.403(n)(4)(iii)). Much of the waste from these institutions is several orders of magnitude below the maximum activity level limit established for low specific activity radioactive materials. However, they still exceed the statutory definition of radioactive materials which includes any material having a specific activity greater than 0.002 microcuries per gram of material (49 U.S.C. 1807).

Most scintillation media wastes also meet the definition of a flammable liquid and are suspected to be carcinogens as well. Animal carcasses and tissues are not classified as hazardous materials *per se* but their disposal is often times handled in the same manner as hazardous materials. The flammability of the very low specific activity scintillation media is considered by MTB to present a greater hazard in transportation than their radiotoxicity. This proposal, therefore, would require

that very low specific activity scintillation media be packaged, marked, labeled and otherwise prepared for shipment and transported on the basis of their flammability or another acute hazard, if present. Animal carcasses and tissues containing low levels of tritium or carbon-14 which do not meet the definition of another hazard class could be transported as materials not subject to the HMR.

B. NRC Rule Change

The NRC investigation of problems associated with these low activity wastes from the biomedical community resulted in rules documents published in the *Federal Register* on October 8, 1980 (45 FR 67018) for the proposed rule, and March 11, 1981 (46 FR 16230) for the final rule. As adopted, the new Section 20.306 allows licensees greater latitude in the disposal of certain wastes containing low concentrations of tritium and carbon-14. In essence, if the specific activity of animal carcasses and tissues and liquid scintillation media are not greater than 0.05 microcuries per gram, they may be disposed of without regard to the radioactive nature of the materials. When compared to other radionuclides, the fundamentally lower radiation hazards of tritium and carbon-14 allow these low activity wastes to be disposed of safely when emphasis is placed on the other hazardous or noxious properties presented by the materials.

**C. Radiological Hazards During
Transport**

Existing provisions of the HMR require the shipper to consider all hazards associated with a material when packaging and offering a hazardous material for transportation. Although the subject materials meet the definition of radioactive material for purposes of transportation, the radiological consequences to personnel and the environment in the event of release during transportation are considered to be extremely small. The potential risks associated with possible gradual buildup of activity at disposal locations over a period of time was considered in the NRC rulemaking. The potential risk of a buildup of activity as a result of transportation activities is even less.

**Classification of Rule, Reporting
Requirements, and Impact on Small
Entities**

A. Non-Major Rule

MTB has determined that this proposed rule will not result in a "major rule" under the terms of Executive Order

12291 and is not significant under DOT implementing procedures (44 FR 11034), nor require an environmental impact statement under the National Environmental Policy Act (49 U.S.C. 4321 et seq.). Although a regulatory impact analysis is not required, MTB has prepared a draft regulatory evaluation and environmental assessment and entered it in the Docket which is available for inspection at the address shown above. In addition, the Value/Impact Statement prepared by the NRC in support of its rulemaking which deregulated these wastes is available in the Docket and addresses the overall impacts of the less restrictive disposal of these materials.

B. Impact of Small Entities

Based on limited information available concerning size and nature of entities likely to be affected, I certify that this proposal will not, if promulgated, have a significant economic impact on a substantial number of small entities.

List of Subjects in 49 CFR Part 173

Hazardous materials transportation.

In consideration of the foregoing, 49 CFR Part 173 would be amended as follows:

PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

In 173.425, paragraph (d) would be added to read as follows:

§ 173.425 Transport requirements for low specific activity (LSA) radioactive materials.

(d) Except for transportation by aircraft, low specific activity material that conforms with the provisions specified in 10 CFR 20.306 are excepted from all requirements of this subchapter pertaining to radioactive materials when offered for transportation for disposal. A material which meets the definition of another hazard class is subject to the provisions of this subchapter relating to that hazard class.

(49 U.S.C. 1803, 1804, 1806; 49 CFR 1.53, App. A to Part 1 and paragraph (a)(3) of App. A to Part 100)

Issued in Washington, D.C. on August 17, 1984.

Joseph T. Herning,

Acting Associate Director for Hazardous Materials Regulation, Materials Transportation Bureau.

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